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(54) Title: FIRE RESISTANT POLYMERIC FOAM COMPOSITES

(57) Abstract: Polymeric foam composites (PFCs) containing a polyurethane or polyisocyanurate foam can pass both ceiling and wall portions of the United Building Code 26-3 Room Corner Burn Test and can meet requirements for Factory Mutual 4880 approval. Polymeric foam composites of the present invention have a front face with an exposed metal sheet. Polymeric foams in the PFCs contain at least 4 weight-percent halogen, at least 10 percent of which comes from a highly-halogenated compound, at least 0.25 weight-percent phosphorous, and a residual blowing agent composition that contains less than 50 weight-percent chlorofluorocarbons and hydrochlorofluorocarbons. The polymeric foam also contains flame-retarding fibers at an average concentration of at least one weight-percent, based on combined foam and fiber weight, within 0.125 inches (3.2 millimeters) of the foam's front surface.



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## INTERNATIONAL SEARCH REPORT

PCT/US 03/21434

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08J9/04 B32B15/08 B32B5/18 B32B5/22 B29C44/32

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages.	Relevant to claim No.
A	US 4 028 158 A (HAGAN JOSEPH R ET AL) 7 June 1977 (1977-06-07) examples 1,2 claims	1-19
A	EP 0 832 735 A (WOLMAN GMBH DR) <u>1 April 1998 (1998-04-01)</u> page 2, lines 46,47 claims 1,5-12	1-19
A	GB 895 967 A (ICI LTD) 9 May 1962 (1962-05-09) claims	1-19

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## INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4028158	A	07-06-1977	AT 361718 B	25-03-1981
			AT 24977 A	15-08-1980
			CA 1088409 A1	28-10-1980
			DE 2700907 A1	21-07-1977
			ES 455136 A1	16-04-1978
			ES 466545 A1	01-10-1978
			FR 2338139 A1	12-08-1977
			GB 1536979 A	29-12-1978
			IT 1192168 B	31-03-1988
			JP 1367857 C	11-03-1987
			JP 52110791 A	17-09-1977
			JP 57058294 B	09-12-1982
			LU 76595 A1	24-06-1977
			NL 7700527 A ,B,	21-07-1977
			US 4386983 A	07-06-1983
EP 0832735	A	01-04-1998	DE 19639842 A1	02-04-1998
			DE 19652352 A1	18-06-1998
			EP 0832735 A2	01-04-1998
GB 895967	A	09-05-1962	NONE	